

CLAIMS

1. A particle in which the core is based on at least one biodegradable organosoluble polymer, characterized in that it is at least partially surface-coated with at least one hyaluronan or with one of its derivatives, said hyaluronan being a water-soluble amphiphilic hyaluronan, the carboxylic functions of which are in part converted so as to form hydrophobic groups.
2. The particle as claimed in claim 1, characterized in that the hydrophobic groups are attached to the hyaluronan by means of ester and/or amide functions.
3. The particle as claimed in claim 1 or 2, characterized in that the carboxylic functions are in part esterified with at least one group chosen from linear or branched, saturated or unsaturated alkyl chains which may be interrupted with one or more hetero atoms and, where appropriate, substituted with an aromatic ring, and oligomers that derive from α -hydroxy acids.
4. The particle as claimed in claim 3, characterized in that the alkyl chains have a number of carbon atoms of greater than 5, and in particular greater than 10.
5. The particle as claimed in any one of claims 1 to 4, characterized in that, when the alkyl chains have a number of carbon atoms ranging from 15 to 20, the degree of esterification is at most 15%.
6. The particle as claimed in claim 5, characterized in that the hyaluronan is esterified with an alkyl chain having 18 carbon atoms.
7. The particle as claimed in claim 6, characterized in that the degree of esterification is less than 7%.

8. The particle as claimed in any one of claims 1 to 4, characterized in that, when the alkyl chains have a number of carbon atoms ranging from 10 to 14, the degree of esterification is greater than or equal to 25%.

9. The particle as claimed in any one of the preceding claims, characterized in that the biodegradable organosoluble polymer is, or is derived from, a synthetic or natural biodegradable polymer.

10. The particle as claimed in any one of the preceding claims, characterized in that the biodegradable organosoluble polymer is a polymer chosen from polyesters such as poly(lactic acid), poly(glycolic acid) or poly(ϵ -caprolactone), polyanhydrides, poly(alkyl cyanoacrylates), polyorthoesters, poly(alkylene tartrate), polyphosphazenes, polyamino acids, polyamidoamines, polycarbonate, poly(methylenedimaleate), polysiloxane, polyhydroxybutyrate or poly(malic acid), and their copolymers or derivatives.

11. The particle as claimed in any one of claims 1 to 10, characterized in that the biodegradable organosoluble polymer is chosen from poly(lactic acid), poly(glycolic acid), poly(caprolactone) and their copolymers.

12. The particle as claimed in any one of the preceding claims, characterized in that it also comprises at least one biological or synthetic active substance encapsulated in the polymer core.

13. The particle as claimed in claim 12, characterized in that the encapsulated active substance is at least one biological substance chosen from peptides, proteins, carbohydrates, nucleic acids, lipids, polysaccharides, antigens, enzymes, hormones, receptors, vitamins, matricial components such as, for example,

glycosaminoglycans, biological factors involved in the process of regeneration and/or protection of cartilage, in arthrosis, and mixtures thereof.

- 5 14. The particle as claimed in claim 13, characterized in that the encapsulated active substance is chosen from glucosamine, hyaluronic acid, chondroitin sulfate and mixtures thereof.
- 10 15. The particle as claimed in claim 12, characterized in that the active substance is at least one synthetic active substance, in particular of the medicinal product type, chosen from anti-inflammatory compounds, anesthetics, chemotherapeutic agents, immunotoxins, 15 immunosuppressants, steroids, antibiotics, antiviral agents, antifungal agents, antiparasitic agents, immunizing substances, immunomodulators and analgesics.
- 20 16. The particle as claimed in any one of the preceding claims, characterized in that it comprises up to 95% by weight of an active substance.
- 25 17. The particle as claimed in any one of the preceding claims, characterized in that it has a size ranging from 50 nm to 600 μ m, and in particular from 80 nm to 250 μ m.
18. The particle as claimed in any one of claims 1 to 17, characterized in that it is a nanoparticle.
- 30 19. The particle as claimed in any one of claims 1 to 17, characterized in that it is a microparticle.
- 35 20. The particle as claimed in any one of claims 1 to 19, characterized in that it is obtained by the emulsion/solvent evaporation technique using, as emulsion stabilizing agent, at least said amphiphilic hyaluronan.

21. A biological vector, characterized in that it comprises at least particles as claimed in any one of claims 1 to 20.
- 5 22. The use of particles as claimed in any one of claims 1 to 20, or of a vector as claimed in claim 19; for encapsulating at least one active substance.
- 10 23. The use of particles as claimed in any one of claims 1 to 20, or of a vector as claimed in claim 21, for preparing a pharmaceutical composition intended for the treatment of arthrosis.
- 15 24. A pharmaceutical composition or diagnostic composition comprising at least particles as claimed in any one of claims 1 to 20 or a vector as claimed in claim 21, where appropriate combined with at least one pharmaceutically acceptable and compatible carrier.
- 20 25. The use of hyaluronan or derivative as a targeting agent at the surface of particles or of capsules.
- 25 26. The use as claimed in claim 25, characterized in that the hyaluronan is a hyaluronan as defined in claims 1 to 8.
27. The use as claimed in claim 25 or 26, characterized in that the particles or capsules are nanospheres or microspheres, or nanoparticles or microparticles.